

NOTES ON THE CRAYFISH *PROCAMBARUS*  
(*ORTMANNICUS*) *XILITLAE*  
(DECAPODA: CAMBARIDAE)

Horton H. Hobbs, Jr. and Andrew G. Grubbs

*Abstract.*—With the acquisition of the exuviae of a first form male revealing the structure of the secondary sexual features (described and illustrated herein), the affinities of the troglotic crayfish *Procambarus (Ortmannicus) xilitlae* are reassessed. Its tentative assignment to the subgenus *Scapulicambarus* by Hobbs and Grubbs (1982) was found to be in error when it was discovered that a shoulder was lacking on the cephalic surface of the first pleopod of the first form (“adult”) male.

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*Procambarus (Scapulicambarus) xilitlae* Hobbs and Grubbs, 1982, was described from Hoya de las Guaguas, near the town of Xilitla, San Luis Potosí, Mexico. The authors based their description on a second form male and two females, and they tentatively assigned the crayfish to the subgenus *Scapulicambarus*, making the statement that “The availability of a first form male of this new crayfish would greatly strengthen our confidence in the inferences that we have made in assessing its relationship to other crayfishes.” While they were confident that it is a member of the genus *Procambarus*, they were “. . . less certain as to which of the subgenera it should be assigned, *Ortmannicus* or *Scapulicambarus*” (Hobbs and Grubbs 1982:49).

The only feature that serves consistently to separate the members of these two subgenera is the presence of a strong, usually angular shoulder on the cephalic surface of the left first pleopod of the male; the shoulder on the right pleopod is folded caudomesially and pressed against the mesial face of the appendage. Ignoring the shoulder, the two subgenera seem clearly to merge through forms like *Procambarus (O.) evermanni* (Faxon, 1890), *P. (O.) xilitlae*, *P. (S.) paeninsulanus* (Faxon, 1914), and *P. (S.) strenthi* Hobbs (1977). A shoulder is present

in the second form male of all members of *Scapulicambarus*, but it is often much weaker than that of first form individuals (see figs. 280 to 284 in Hobbs 1974). The small bulge on the cephalic surface of the pleopod of the holotypic male, form II, of *P. (O.) xilitlae* (see fig. 1b in Hobbs and Grubbs 1982) appeared to represent such a shoulder, thus prompting the original assignment of this crayfish to the subgenus *Scapulicambarus*.

With the rearing of a second form male in the laboratory by one of us (AGG) and preserving its exuviae, one of which was shed when molting from form I to form II (see below), we discovered that the first pleopod lacks a shoulder. thus the species must be transferred to the subgenus *Ortmannicus*.

The absence of pigment from the body and eyes, the non-faceted cornea, the presence on the first pleopod of the first form male of a well developed caudal process, and the absence of an adventitious process will serve to distinguish this crayfish from all others. A description and illustrations of the secondary sexual and certain other features of the first form exuviae of this topotypic male are offered to complete the basic description of this crayfish.

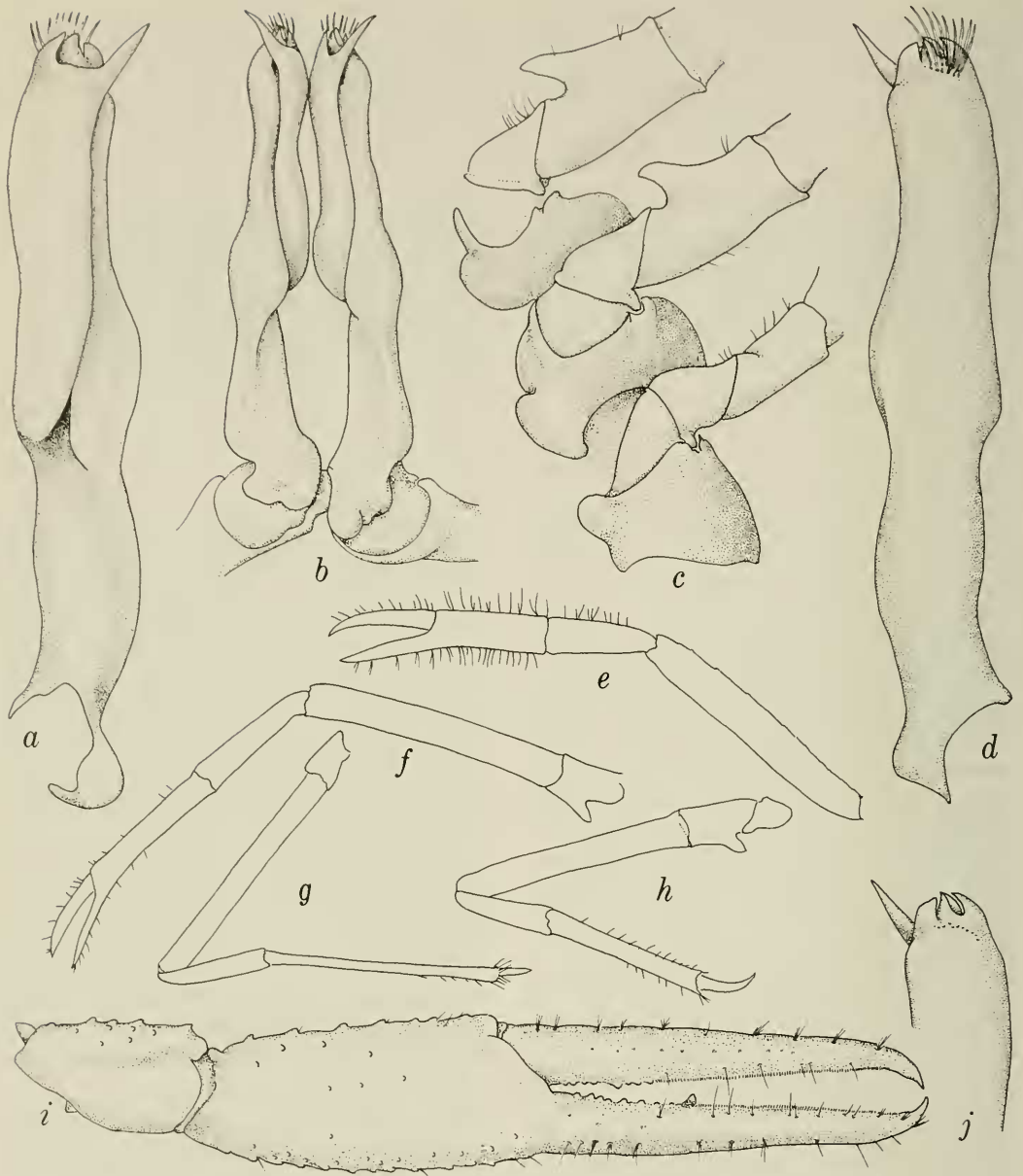


Fig. 1. *Procambarus (Ortmannicus) xilitlae* (all from exuviae of first form male): a, Mesial view of first pleopod; b, Caudal view of first pleopods (proximal parts probably shrunken, but asymmetry real); c, Proximal podomeres of third, fourth, and fifth pereiopods; d, Lateral view of first pleopod; e, Distal podomeres of second pereiopod; f, Same of third pereiopod; g, Same of fifth pereiopod; h, Same of fourth pereiopod; i, Same of first pereiopod; j, Lateral view of distal part of first pleopod without subapical setae.

*Procambarus (Ortmannicus) xilitlae*

Fig. 1

*Procambarus (Scapulicambarus) xilitlae*

Hobbs and Grubbs, 1982:45–50, 1 fig.

*Male, Form I.*—Chela (Fig. 1i) differing from that of holotype in following respects: mesial margin of palm with row of 7 small tubercles; opposable margin of fixed finger with row of 8 small corneous teeth along proximal third; larger, more ventrally situated one as in holotype; fifth tubercle from base largest of 8 present on proximal third of opposable margin of dactyl. Ischia of third and fourth pereopods with simple hooks (Fig. 1c), that on third overreaching basioischial suture; neither opposed by tubercle on basis.

First pleopods (Fig. 1a, b, d, j) reaching coxae of third pereopods, distinctly asymmetrical but contiguous basally; cephalic surface lacking shoulder; distal extremity bearing large slender tapering mesial process directed distolaterally; cephalic process short, with corneous acute apex, curved caudodistally parallel to short, corneous, acute, beaklike central projection; caudal process corneous, short, wedgelike, its distal margin sloping cephalodistally to angle, apex of which directed toward tip of central projection. Cephalic process and central projection overreaching apex of caudal process but falling short of that of mesial process. Sockets of distally directed subapical setae forming arc on lateral surface just proximal to bases of terminal elements.

*Relationships.*—As pointed out in the introductory remarks, this crayfish is allied to those species that appear to bridge the gap between the subgenera *Ortmannicus* and *Scapulicambarus*. Seemingly it is rather distantly related to the other troglobitic members of *Ortmannicus* which populate much of the peninsula and eastern part of the panhandle of Florida even though the annulus ventralis is much like those of *P. (O.) horsti* Hobbs and Means (1972) and *P. (O.) orcinus* Hobbs and Means (1972). Among the

Mexican crayfishes, it shares more in common with *P. (O.) caballeroi* Villalobos (1944), *P. (O.) acutus cuevachicae* (Hobbs, 1941), *P. (S.) strenthi*, and *P. (Pennides) roberti* Villalobos and Hobbs (1974) than with any others.

*Remarks.*—The topotypic specimen from which the exuviae of the first form was obtained was collected on 26 November 1981, and, when brought into the laboratory, had a carapace length of 26.8 (postorbital carapace length, 21.7) mm. It underwent three molts, remaining in the second form, without any increase in the total length of the carapace. The dates on which the first two exuviae were removed from the aquarium were not recorded, but the third was found on 5 November 1982. Another test was discovered in the aquarium on 23 February 1983 in which the corresponding lengths of the carapace were 27.8 and 22.0 mm. The next was removed on 29 July 1983, but it was so torn that accurate measurements could not be made. Presumably it was at this molt that the transformation to form I was accomplished, for the next exuviae, found on 12 December 1983, furnished the models for the illustrations depicted herein. The corresponding lengths of the carapace were 29.2 and 23.1 mm. The crayfish, found dead on 6 November 1984, had reached a stage of decomposition such that measurements of the carapace could not be made. All of these exuviae and the partly decomposed remains, in form II, are in the collection of the Smithsonian Institution.

To our knowledge, other than the type series and the specimen cited above, only five specimens of *P. (O.) xilitlae* have been collected. These were obtained at the type locality by R. Rhorer and AGG on 4 August 1982 and deposited in the Smithsonian Institution (1 ♂II, 1 j♂, 1 j♀) and the Texas Memorial Museum (1 ♀, 1 j♂).

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(HHH) Department of Invertebrate Zoology, Smithsonian Institution, Washington, D.C. 20560; (AGG) Route 2, Box 279A, San Marcos, Texas 78666.